

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AAABH01150

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Lithobates onca* Frost et al.

COMMON NAME: Relict leopard frog

SYNONYMS: *Rana onca*; *Rana pipiens* (complex); *Rana fisheri*

FAMILY: Anura: Rnidae

AUTHOR/PLACE OF PUBLICATION: Cope, 1875 – in Yarrow, in Wheeler's Rep. Surv. W. 100th Mer., Vol.5, Zool., p. 528. *Lithobates onca*, Frost, D.R., et al., 2006. The Amphibian Tree of Life. *Bulletin of the American Museum of Natural History* no. 297: 1-370. [15 Mar 2006]

TYPE LOCALITY: Within the Virgin River drainage, probably collected in the vicinity of St. George, Washington County, Utah by Henry Crècy Yarrow in 1872.

TYPE SPECIMEN: Henry Crècy Yarrow, 1872. Single adult female collected.

TAXONOMIC UNIQUENESS: In North America, *onca* is 1 of 21+ species in the genus *Lithobates*, and about 1 of 400 species in genus, primarily in the Old World. Validity of *onca* as a species is controversial. Taxonomic question as to whether populations in the Virgin River are *onca* or something else. Jaeger et al. (2001) examined variation in mtDNA and morphology, and concluded that certain leopard frog populations in the Virgin River/Black Canyon (Colorado River) region represent a species [*Lithobates onca*] distinct from *R. yavapaiensis* (NatureServe 2002).

DESCRIPTION: A medium-sized leopard frog with body lengths of 4.45 to 8.90 cm (1.75 to 3.5 in). Dorsal coloration is brown, gray, or greenish, with greenish brown "leopard" spots. The underside is whitish, with dark mottling on the throat and yellow or yellow-orange in the groin and on the underside of the hind limbs. A glandular fold runs down each side of the back, becoming indistinct half to three-quarters of the way towards the rear of the animal. The upper jaw has a light stripe, and the eardrum may have a light center. The male has swollen thumbs.

AIDS TO IDENTIFICATION: The relict frog is very similar (in appearance) and closely related to the lowland leopard frog (*Rana yavapaiensis*). It is distinguished from similar species of the *Rana pipiens* complex by its short, indistinct, dorsolateral folds that extend ½ to ¾ down the dorsum, generally shortened legs, an incomplete supralabial stripe, upper surfaces of the thighs usually spotted and not barred, and males having enlarged tympana, paired vocal sacs, and no vestigial oviducts (Sandmeier, 2001).

ILLUSTRATIONS:

Drawing (Behler and King 1979:376)

Drawing (Smith 1978:69)

Color photo (<http://www.lasvegasmercury.com/2002/MERC-Jun-06-Thu-2002/18901371.html>)

TOTAL RANGE: Virgin River Drainage in SE Nevada and NW Arizona. Previously believed to be extinct; rediscovered in the early 1990s, and, as of 2001, known from small populations in several springs in Arizona and Nevada (NatureServe 2002). Populations in Utah appear to have been extinct since the 1950's (USFWS 2002).

RANGE WITHIN ARIZONA: Extreme NW corner of the state in the Virgin River drainage near Littlefield, Mohave County. Historically this species occurred along the Colorado River and included at least Black Canyon below Hoover Dam. It most likely occurred in what is now Lake Mead and may have extended into the lower Grand Canyon. They were reestablished at 3 sites near Lake Mead but drought and flooding destroyed one population in 2006 (Reptiles of AZ 2013)

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: A nocturnal frog that is inactive in cold temperatures. Like other leopard frogs, when frightened this species will flee into the water or to the security of an overgrown grassy bank (Behler and King 1979).

REPRODUCTION: Reproductive information is incomplete due to inadequate studies of this species. Eggs have been found in November and February, and calling (low throaty snore) has been heard in February, June, and November. (Jennings et al. 1995, *in* NatureServe 2002).

FOOD HABITS: Adults probably are mainly invertivorous. Larvae probably eat algae, organic debris, plant tissue, and minute organisms in water.

HABITAT: According to the USFWS (2002), "Adult frogs inhabit permanent streams, springs, and spring-fed wetlands below approximately 600 m (1,968 ft). Adults may prefer relatively open shorelines where dense vegetation does not dominate. Breeding habitat includes pools or slow moving side areas of streams, with or without emergent vegetation." They typically are found in or near water, or among *Scirpus*.

ELEVATION: 680 – 1,900 ft (207-580 m) in Arizona (AGFD, unpublished data accessed 2003).

PLANT COMMUNITY:

POPULATION TRENDS: Unknown. The total population in the late 1990s was estimated at 1,100 metamorphosed individuals. It is considered one of the rarest frogs in North America. (Reptiles of AZ 2013) .As of 2001, there were roughly a half dozen known extant occurrences in Nevada and Arizona (Jaeger et al. 2001, *in* NatureServe 2002).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: C* (USDI FWS 2007)
[C USDI, FWS 2002]
[C USDI, FWS 2004-2011]
[None (USDI, FWS 1996)]
[3A USDI, FWS 1985, 1989, 1991]
STATE LIST STATUS: 1A (AGFD SWAP 2012)
[WSC, AGFD, WSCA in prep]
OTHER STATUS: None (USDA FS Region 3, 2013)
[Sensitive USDA, FS Region 3, 1999]

MANAGEMENT FACTORS: Threats include elimination or dramatic alteration of aquatic habitat due to dams, agriculture, marsh draining, and water development and the spread of predator and nonnative bullfrogs, crayfish, and predaceous fishes. A fungal disease, chytridiomycosis. (USFWS 2002). Extremely limited distribution. Habitat preservation needed.

PROTECTIVE MEASURES TAKEN: The relict frog has been petitioned for listing. In addition, a multi-agency working group is developing a conservation agreement to maintain viable populations of this frog in the wild. (USFWS 2002). Arizona fishing license required to take any amphibian.

SUGGESTED PROJECTS: Distribution, population and life history studies are needed. Determination of habitat conditions, are required for long-term survival of this species. Surveys for existing and potential populations should be done at night, and at least twice weekly during expected periods of breeding (fall and late winter) (Jennings et al. 1995, *in* NatureServe 2002).

LAND MANAGEMENT/OWNERSHIP: BLM – Arizona Strip Field Office; NPS – Lake Mead National Recreation Area.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Revised: 1991-02-15 (NML)
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